

We Claim

1. A flexible multilayer metal foil structure comprising:
at least two layers of metal sheets wherein the layers are metal
foil each having a thickness of 0.006 in. (0.15mm) or less; wherein
5 the two layers of metal sheets are corrugated and nested together
in a stack; and
a portion of the corrugations of the stack is compressed to form
interlocking folds of the layers.
- 10 2. A flexible multilayer metal foil structure of Claim 1 further
comprising a third metal sheet corrugated, nested and interlocked with the two
metal foil sheets.
- 15 3. A flexible multilayer metal foil structure according to claim 1
wherein the corrugations are compressed in creases across the corrugations,
whereby the structure is flexible by bending of the corrugated stack at the
creases.
- 20 4. A flexible multilayer metal foil structure according to Claim 1
comprising spacers to provide gaps between the layers.
5. A method of making a flexible multilayer metal foil structure
comprising:
forming a stack of at least two layers of metal sheets wherein the
25 layers are metal foil each having a thickness of 0.006 in. (0.15mm) or
less;
forming corrugations across the stack of metal sheets whereby the
corrugations in the layers are nested in the stack; and

compressing a portion of the corrugations in the stack of metal sheets to form folds and interlock the layers together.

6. A method according to Claim 5 wherein the stack comprises a
5 third metal sheet.

7. A method according to Claim 5 further comprising forming
creases across the corrugations to provide flexibility of the structure by bending
at the creases.
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8. A method according to Claim 6 further comprising forming
creases across the corrugations to provide flexibility of the structure by bending
at the creases.

9. A method according to Claim 6 wherein the stack comprises
15 spacers to provide gaps between the layers.

10. A method of making a flexible multilayer metal foil structure
comprising;
20 providing individual corrugated metal sheets;
forming a nested stack of said corrugated metal sheets where the
stack comprises at least three layers of metal sheets wherein at least two
of the layers are metal foil each having a thickness of 0.006 in.
(0.15mm) or less; and
25 compressing a portion of the corrugations in the stack of metal
sheets to form interlocking folds of the layers.

11. A method according to claim 10 further comprising forming creases across the corrugations to provide flexibility of the structure by bending at the creases.
- 5 12. A flexible multilayer metal sheet structure comprising:
at least two layers of metal sheets each having a thickness greater than 0.006 in. (0.15mm); wherein
the two layers of metal sheets are corrugated together in nested corrugations and a portion of the corrugations are compressed to form
10 interlocking folds of the layers.
13. A flexible multilayer metal sheet structure according to Claim 12 further comprising a third metal sheet corrugated, nested and interlocked with the two metal foil sheets.
- 15 14. A flexible multilayer metal sheet structure according to Claim 12 comprising spacers to provide gaps between the layers.
- 20 15. A method of making a flexible multilayer metal sheet structure comprising:
forming a stack of at least two layers of metal sheets each having a thickness of greater than 0.006 in. (0.15mm);
forming corrugations across the stack of metal sheets whereby the corrugations in the layers are nested in the stack; and
25 compressing a portion of the corrugations in the stack of metal sheets to form interlocking folds of the layers.

16. A method according to Claim 15 wherein the stack comprises a third metal sheet.

17. A method according to Claim 15 further comprising forming
5 creases across the corrugations to provide flexibility of the structure by bending at the creases.

18. A method of making a flexible multilayer metal sheet structure comprising;
10 providing individual corrugated metal sheets;
forming a nested stack of said corrugated metal sheets where the stack comprises at least two layers of metal sheets each having a thickness of greater than 0.006 in. (0.15mm); and
compressing a portion of the corrugations in the stack of metal
15 sheets to fold the layers in the corrugations into interlocking engagement.

19. A method according to Claim 18 wherein the stack comprises a third metal sheet.

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20. A method according to Claim 18 further comprising forming
creases across the corrugations to provide flexibility of the structure by bending
at the creases.

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